ONEBONSAI

CASE STUDY

VR Robotic Surgery Training, ORSI Academy

Portable VR robotic surgery training with ORSI Academy: surgeons practise suturing and knot-tying with custom controllers, at their own pace.

Platform: VR / Partner: ORSI Academy / Method: Proficiency-Based Progression / Hardware: Custom controllers

DEEP TECH. REAL IMPACT.

Project overview

Portable VR robotic surgery training with ORSI Academy: surgeons practise suturing and knot-tying with custom controllers, at their own pace.

About the project

OneBonsai and ORSI Academy built portable VR training for robotic surgery. Surgeons practise core tasks such as suturing, knot-tying and precise movements with custom controllers that mimic robotic consoles like Intuitive Xi and Medtronic Hugo, following ORSI's Proficiency-Based Progression method, at their own institution or at home.

Challenge

Making Robotic Surgery Training More Accessible

Robotic surgery is revolutionizing modern medicine, but the path to proficiency is complex and often prohibitively expensive. Surgeons must master delicate motor skills, precise hand-eye coordination, and the ability to operate advanced robotic consoles such as the Intuitive Xi or Medtronic Hugo systems.

Training opportunities are limited because robotic consoles are costly, logistically difficult to transport, and in high demand at specialized training centers. This meant that aspiring robotic surgeons often had to travel long distances, wait for limited slots, or practice only during short, supervised sessions on shared equipment. Traditional alternatives, such as classroom theory or videos, could not replicate the muscle memory and dexterity required to excel in robotic procedures.

ORSI Academy, a world-renowned surgical training institution, recognized the urgent need for a scalable and cost-effective solution that would allow surgeons to begin skill acquisition long before stepping onto a real robotic console.

> *"Access to real robotic consoles was too expensive and limited, restricting opportunities for widespread training."*

Solution

Portable VR Training Platform

In collaboration with ORSI Academy, OneBonsai developed a portable VR-based training system designed to replicate core robotic surgery procedures. This immersive platform allows trainees to practice essential tasks such as suturing, knot-tying, and precision movements in a safe and repeatable virtual environment.

The training setup includes custom-designed controllers that mimic the tactile feel and ergonomics of real robotic interfaces, ensuring a seamless transition from virtual to physical consoles. The VR modules not only simulate the procedures themselves but also incorporate performance tracking, feedback, and

difficulty progression to keep surgeons continuously improving.

By making practice possible outside of specialized training centers, the solution empowers surgeons to gain familiarity and confidence earlier in their learning journey.

Approach

Proficiency-Based Progression & Realistic Simulation

The VR training system was built to align with ORSI's Proficiency-Based Progression (PBP) methodology, a benchmark approach that ensures surgeons only advance once they demonstrate competency, rather than after a set time period. Each module was carefully designed to challenge trainees to repeat critical tasks until mastery was achieved, reinforcing best practices and reducing the risk of errors in real procedures.

OneBonsai's technical team worked closely with ORSI's surgical experts to ensure anatomical accuracy, realistic physics, and clinically relevant scenarios. The training platform was deliberately made portable and accessible, allowing surgeons to practice from their own institutions or even at home. By combining VR immersion with tailored hardware and educational rigor, this system addressed both the technical and logistical barriers to robotic surgery training.

> *"I can now practice core robotic skills at home before ever touching a real console."*

Outcome

Scalable, Cost-Effective Robotic Surgery Training

The VR Robotic Surgery Training System will transform the accessibility of surgical education. Surgeons who once had limited exposure to robotic consoles could now build the necessary motor skills and confidence in a low-cost, safe environment before ever touching an actual robot. This reduces the time and resources needed at specialized centers, allowing institutions like ORSI to train more surgeons more efficiently.

Hospitals benefit from faster, better-prepared recruits, while trainees feel empowered by the opportunity to practice repeatedly without pressure or fear of mistakes. By blending realism, scalability, and educational integrity, this solution sets a new standard for robotic surgery training and demonstrates the potential of immersive technology to reshape medical education globally.

> *"This platform makes robotic surgery training scalable, affordable, and globally accessible."*

Discuss a similar project

Book a 30-minute technical conversation at hq.onebonsai.agency/meet/evarest